

From owner-qrp-1@netcom.com Thu Oct 6 20:03:57 1994
Date: Thu, 6 Oct 94 17:19:28 EDT
From: klaudon@PICA.ARMY.MIL
Message-Id: <9410062119.AA21078@batdd6.batdd1.pica.army.mil>
Subject: Any DSP recommendations?

Dear QRP folks:

Since most, or nearly all, of us are devoted CW ops, I would like to get some opinions from the group on the current DSP units that are out on the market.

I have a situation of VERY high electrical noise from dimmers and other really nasty, terrible, horrible, no-good, very-bad QRN. I also do not own a stand-alone, super-duper CW filter. So it would seem that a DSP unit might be just the thing!

I want the best unit available for noise reduction. Hopefully, I will not need to buy the \$ 350 version of one of these units to get that feature! Filter modes for digital reception, RTTY, etc. are not needed. I also am willing to live without having hundreds of possible bandwidth and center freq. combos, unless someone out there thinks that this really would be useful. Again, CW is the main application, and getting rid of the noise is the MAIN requirement.

Any recommendations?

Tnx es 73,
Kalman Laudon, WD6CZI
klaudon@pica.army.mil

From owner-qrp-1@netcom.com Thu Oct 6 01:45:04 1994
From: JEVERHART@cayman.vf.ge.com
Date: Wed, 5 Oct 1994 22:10:58 -0400 (EDT)
Message-Id: <941005221058.2100301a@cayman.vf.ge.com>
Subject: Re: high Q output networks?

Bruce,

On October 2 you opined:

> I've been playing with the formulae in the Handbook relating to pi
> filters, and I noticed something strange about the typical 50 ohm in
> 50 ohm out that qrp'ers usually use. In almost every book I've seen,
> these comprise 50 ohm impedance caps and coils, producing a Q of 1.
> However, it seems that one can produce Qs up to 5 on some bands with
> other values that are still reasonable. This, I assume, would
> translate into better harmonic attenuation.

> Am I missing something, or are we QRPers just a little lazy? :-)

> (Bruce Robinson, VE3UWL)

and Ward, N0AX replied:

>> Higher Q means lower bandwidth over which matching is maintained,
>> but that's not necessarily a problem for QRP rigs. Also, the higher
>> the Q, the higher the voltage and currents circulating in the
>> coils and capacitors. Also, this is not typically a problem for QRP
>> rigs. I've seen high-power output capacitors literally unsolder
>> themselves from the heat generated by high circulating currents in
>> a kW amp.

I have a few things to add:

Yes, the added Q can translate to added harmonic attenuation. But for QRP level rigs, and particularly QRPp rigs, a lot of harmonic rejection may be overkill. The fundamental is so weak that harmonics may be obscured by other signals or ambient noise except under quiet band conditions. Even so, with a multiband antenna, a simple $Q=1$ PI network output may have marginal attenuation to meet FCC requirements.

The use of low Q output networks, say those with a Q-of-one has many advantages. The foremost is reproduceability and elimination of the need to tune the output stage (the Yaecomwood no-tune rig philosophy). I've done in commercial and military radio design and can attest to the fact that eliminating the need to tune or use tight tolerance components is VERY desirable for manufacturing. Plus for long term usage it's nice to not have to worry about component drift in the output network.

Another very important consideration is that the high Q networks need L and C values that may be impractical. Check out the component values for a Q of 10. They get down to 10 ohms or less. Things get messy at these low reactances. Inductor stray capacitance and low Q and capacitor series inductance and effective series resistance can make high Q pi networks impractical. They may not tune where you want them and can have high loss. With the Q-of-one network everything behaves as expected and doesn't call for special components.

I think that the use of the Q-of-one output network has been at least partially responsible for the recent explosion of 1.5 watt simple QRP transmitters. Remember the old days when you had to mess around with tapped tank coils and link coupling? Yuk!

I'm not sure when it will be published, but I've written up this output network for the QRP ARCI Quarterly. It should appear in the Idea

Exchange Column, edited by Mike, WA8MCQ. Look there for a "Joe's Quickie" on the Quarter Wave Output Network .

72,

Joe E.

From owner-qrp-l@netcom.com Thu Oct 6 12:30:45 1994
Date: Thu, 6 Oct 1994 09:58:58 -0400 (EDT)
From: "James C. Stafford" <w4qo@america.net>
Subject: Lemon Powered QSO project
Message-Id: <Pine.3.89.9410060956.A17310-01000000@atl1>

I am helping a high school student - KC4ROW - do some work with various "fruit" and "vegetable" batteries for a science fair project. We both feel that it would enhance the exhibit part of the project to have a Lemon Powered QSO. We can build up a little milli-watt rig such as the fine article on page 18 of QST, March 1992, but what I'm looking for are suggestions on a receiver we can use. Here are some discussion items:

1. A DC receiver that draws less than 10 ma, is there one? I think we can generate 10 ma from a lemon juice battery. We can use an external audio amp on "commerical" power.
2. A crystal set - Ok we could use an "external BFO", IE another transmitter offset by 500 hz hidden nearby. Kinda seems like cheating though, but we could power it from a lemon too.
3. An R-390 powered by an inverter and 3,000,000 lemons for 11 seconds!

Any ideas appreciated. I have quite a large supply of QRP magazines for the past 5 years so you could refer me to one of those. Also, maybe we could have some kind of "Lemon juice" challenge for the farthest QSO on say 40 meters using only two lemons as power.

72/73, Jim Stafford, W4Q0	RadioActive Schools -
11395 West Road	Using amateur radio as a tool to
Roswell, GA 30075	enhance the classroom experience
404-993-9500	in the North Georiga area.
Packet: w4qo@wa4bro.#atl.ga.usa.na	Email: w4qo@america.net

From owner-qrp-l@netcom.com Thu Oct 6 17:54:52 1994
Message-Id: <199410061659.LAA19501@harbor.ecn.purdue.edu>
From: Duane P Mantick <wb9omc@ecn.purdue.edu>
Subject: Re: Lemon Powered QSO project
Date: Thu, 6 Oct 1994 11:59:01 -0500 (EST)

>
> I am helping a high school student - KC4ROW - do some work with various
> "fruit" and "vegetable" batteries for a science fair project. We both
> feel that it would enhance the exhibit part of the project to have a
> Lemon Powered QSO. We can build up a little milli-watt rig such as the
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> suggestions on a receiver we can use. Here are some discussion items:
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> 404-993-9500 in the North Georiga area.
> Packet: w4qo@wa4bro.#atl.ga.usa.na Email: w4qo@america.net
>

Now *this*, IMHO, is what Amateur Radio should be doing -

- a) recruiting young hams, and I suspect High school age is good, younger is cool too....
- b) showing new hams that it isn't all just packet, but a multi-faceted hobby
- c) using amateur radio as a REAL, hands-on kind of educational tool, something that IMHO, we could use a lot more of.

Jim, I doff my cap to you and salute you.

If you haven't already, you might want to look at something like the Edmund Scientific catalog. They always have a bunch of stuff that is useful for small educational projects.

Something that was given to me *years* ago was an interesting little curiosity called the "Two-Potato Clock". It is a little LCD-faced digital clock that runs from two potatoes, using the

dissimilar electrodes concept. Potatoes worked surprisingly well. I never did measure to see what sort of current I was drawing, but a couple potatoes would keep the sucker running for days, generally until they dried out. Any citrus fruit worked well, too, although I do think the lemons were by far the best - higher acid content, perhaps?

Anyway, good luck to you.

Duane Mantick
wb9omc

From owner-qrp-1@netcom.com Thu Oct 6 18:37:31 1994
Date: Thu, 6 Oct 94 12:04:18 PST
From: Mike J Pulley <Mike_J_Pulley@ccm.ch.intel.com>
Message-Id: <941006120418_5@ccm.hf.intel.com>
Subject: Re: Lemon Powered QSO project

Text item:

Jim,

How about a basic germanium crystal rcvr? No battery power required. You'd have to learn the knack of copying the "quiet" of a CW signal separated by the atmospheric static when there is no signal. (Instead of hearing a tone when a signal is present, you would hear the static go away during key down. The static returns between signals. It's like making sense out of photographic negatives... everything seems backwards.)

With the appropriate L's and C's around it, the receiver can even be tunable.

-- Mike

----- Reply Separator -----
Subject: Lemon Powered QSO project
Author: owner-qrp-1@netcom.com at Internet_Gateway
Date: 10/6/94 10:13 AM

I am helping a high school student - KC4ROW - do some work with various "fruit" and "vegetable" batteries for a science fair project. We both feel that it would enhance the exhibit part of the project to have a Lemon Powered QSO. We can build up a little milli-watt rig such as the fine article on page 18 of QST, March 1992, but what I'm looking for are suggestions on a receiver we can use. Here are some discussion items:

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Any ideas appreciated. I have quite a large supply of QRP magazines for the past 5 years so you could refer me to one of those. Also, maybe we could have some kind of "Lemon juice" challenge for the farthest QSO on say 40 meters using only two lemons as power.

72/73, Jim Stafford, W4QO
11395 West Road
Roswell, GA 30075
404-993-9500

RadioActive Schools -
Using amateur radio as a tool to
enhance the classroom experience
in the North Georiga area.

Packet: w4qo@wa4bro.#atl.ga.usa.na Email: w4qo@america.net

Text item: External Message Header

The following mail header is for administrative use
and may be ignored unless there are problems.

IF THERE ARE PROBLEMS SAVE THESE HEADERS.

Precedence: list

Sender: owner-qrp-l@netcom.com

Content-Type: TEXT/PLAIN; charset=US-ASCII

Mime-Version: 1.0

Message-Id: <Pine.3.89.9410060956.A17310-01000000@atl1>

Cc: w4qo@america.net

To: qrp-l@netcom.com

Subject: Lemon Powered QSO project

>From: "James C. Stafford" <w4qo@america.net>

Date: Thu, 6 Oct 1994 09:58:58 -0400 (EDT)

Received: (from w4qo@localhost) by america.net (8.6.9/8.6.9) id NAA18868; Thu, 6

Received: from america.net by relay2.UU.NET with ESMTP

id QQxklk06309; Thu, 6 Oct 1994 10:01:54 -0400

Received: from relay2.UU.NET by mail2.netcom.com (8.6.9/Netcom)

id HAA11785; Thu, 6 Oct 1994 07:01:56 -0700

Received: by mail2.netcom.com (8.6.9/Netcom)

id HAA11800; Thu, 6 Oct 1994 07:02:00 -0700

Received: from mail2.netcom.com by hermes.intel.com (5.65/10.0i); Thu, 6 Oct 94

Received: from hermes.intel.com by relay.jf.intel.com with smtp

(Smail3.1.28.1 #2) id m0qswNh-000twfC; Thu, 6 Oct 94 10:13 PDT

From owner-qrp-1@netcom.com Thu Oct 6 03:30:55 1994
Date: Wed, 5 Oct 94 20:55:14 PDT
Message-Id: <9410060355.AA07792@altair.csustan.edu>
From: dh@altair.csustan.edu (Doug Hendricks)
Subject: Re: NorCal 40A

Guys, here it is, more exciting news from NorCal QRP Club. Wayne Burdick sent me this article in response to a discussion that was held at our regular club meeting Sunday. Jim Cates, Eric Swartz and I have finally convinced Wayne that the club needs another run of NorCal 40's. Wayne agreed that we needed to, but he wanted to make some improvements and fixes. The club is taking orders from now until Jan. 1, and the price will stay the same, \$89.00 plus \$5.00 shipping for US residents, \$89.00 plus \$6.90 state tax plus \$5 shipping for California residents for a total of \$99.90. And \$89 plus \$10 shipping for DX orders. Send your checks and/or money orders made out to Jim Cates to:

Jim Cates, WA6GER
3241 Eastwood Rd.
Sacramento, CA 95821

This offer is only for NorCal members. We need to do that because we are not a commercial venture. To become a NorCal member, send \$5 to Jim Cates at the above address. We are looking at a Feb. shipping target. But again, we are at the mercy of our suppliers.

I had intended to hold this for the December issue but I just couldn't wait to tell the World that the NorCal 40A is available again.
Doug, KI6DS

>The NorCal 40A:
>Solid Evidence that
>Darwin was Right!
>
>Wayne Burdick, N6KR
>
>As predicted, NorCal members modified, molded, prodded, painted, tweaked,
>torqued and tested thier NorCal 40s during the past year. The result is
>that we've learned a lot about how to improve the basic design.
>
>Does this provide evidence for the Theory of Evolution? You betcha! A
>small number of NorCal 40s mutated or mated their way into superior
>fitness, and the new generation--the NorCal 40A--is ready to squirm out of
>its shell and into the sunshine.
>
>The NorCal 40A has a number of improvements over the original design,
>including a few ideas borrowed from its cousin, the Sierra, but the price
>will stay about the same. I hope the kit will appeal to some of our newest

>members, many of whom missed out on the limited run of the NorCal 40 and
>Sierra.
>
>Here's the list of improvements that I expect to include in the new design:
>
>1. New PC board layout--cleaner, with solder mask to reduce shorting, etc.
>2. Toggle switches for RIT and ON/OFF will have threaded bushings, making
>the front and rear panels MUCH more stable.
>3. RIT circuit from the Sierra will be used--fewer parts.
>4. Better grounding around the crystal filter will yield less filter
>blow-by on strong signals.
>5. AGC circuit (the two JFETs) will be linearized for better strong-signal
>performance. I'll also include a pot for adjusting the AGC level,
>eliminating the infamous "R6" problem. (High 5's all the way around!)
>6. The VFO will use a new, more stable pot with greater rotation range,
>and the VFO will cover 50KHz standard rather than 35KHz. Also, there will
>be more space available to put in a 10-turn pot.
>7. The VFO and RIT resistors will all be scaled by a factor of 10 to allow
>the use of a 10K VFO pot. It's easier to find a 10-turn 10K pot than 100K
>(thanks, Doug!).
>8. The TX mixer's 4.915MHz crystal oscillator will use a 270pF rather than
>150pF cap to reduce the signal amplitude into the NE602, which will in turn
>reduce output harmonic content.
>9. The TX monitor pitch and RX BFO pitch will both be independently
>adjustable as it is on the Sierra.
>10. Overall RF gain will be improved by using a high-Q tank at the input to
>the RX mixer. The original circuit used a low-Q 15uH choke.
>11. VFO and transmitter output will both be improved--or at least made more
>consistent--by switching to 2N4416s or J310s instead of MPF102s. The
>latter can have poor transconductance. I'll also be choosing different
>JFETs for the AGC circuit to improve signal handling.
>12. The DC power connector will be a standard 2.1mm barrel, as on the
>Sierra, rather than the RCA jack. This will prevent power supply shorts.
>13. I'll try to include 80-meter modification instructions. This will
>involve changing around 10 to 15 component values.
>14. The long standoffs on the top of the PC board will go away, in favor of
>Sierra-style plastic latches. (One thing I learned from attending NorCal
>meetings is that people like taking the covers off of their rigs and
>showing them off!) The latches will mean no more lost screws, and will
>also allow easy access to interior controls and modifications, as in the
>Sierra.
>15. The manual will be updated, of course, and will include some features
>from the Sierra manual, such as the DC voltages chart.
>
>The NorCal 40A schematic will be reprinted in a later issue of QRPP so that
>anyone can, if they wish, modify the NorCal 40 in the same way.
>
>Thanks again for all of your help in refining our club's classic rig. Who

>knows? Perhaps another year of field testing by new members will culminate
>in a NorCal 40B. If this keeps up, we'll have to honor Mr. Darwin with a
>QRP DXpedition to the Galapagos Islands....

>
>

From owner-qrp-1@netcom.com Thu Oct 6 18:40:02 1994
Date: Thu, 06 Oct 94 15:10:16 EDT
From: Mike Thomas <MTHOMAS@uga.cc.uga.edu>
Subject: NorCal 40a
Message-Id: <941006.151643.EDT.MTHOMAS@UGA.CC.UGA.EDU>

Everyone,

After looking back through some previous QRPp issues I read the first announcement for the NorCal 40 and it said "VFO coverage of any 40 KHz CW segment of 40 meters". So looks like I answered my own question about the 40a tuning 7100-7150. Sorry for the wasted bandwidth. Now anyone have any suggestions about how I can disguise the check to look like it was for groceries? :-)

KE4LAU

Mike Thomas

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_/ _/ _/ _/_/_/_/ _/_/_/_/
_/ _/ _/ _/_/_/_/ mthomas@uga.cc.uga.edu
_/ _/ _/ _/_/_/_/ University Computing & Networking Services
//_/_/ _/_/_/_/ _/ _/ University of Georgia

From owner-qrp-1@netcom.com Thu Oct 6 23:06:03 1994
Date: Thu, 6 Oct 94 16:08:21 MDT
From: lemoine@sicom.com (Dana Lemoine)
Message-Id: <9410062208.AA25781@sicom.com>
Subject: Re: NorCal 40a

Mike Thomas writes:

> the 40a tuning 7100-7150. Sorry for the wasted bandwidth. Now anyone have
> any suggestions about how I can disguise the check to look like it was
> for groceries? :-)

>
> KE4LAU
>
>

> Mike Thomas

I missed the original offer for the NorCal40 because I was worried about the radios vs. groceries argument from my significant other.

Well, this time I'm not gonna miss out. I'm gonna write a check, stick my chest out and take it like a man!

Dana KJ7BR
lemoine@sicom.com

(I hope she's in a good mood....)

From owner-qrp-1@netcom.com Thu Oct 6 23:07:05 1994
Date: Thu, 6 Oct 94 18:40:46 -0500
From: adams@chuck.dallas.sgi.com (chuck adams)
Message-Id: <9410062340.AA13428@chuck.dallas.sgi.com>
Subject: Re: NorCal 40a

NorCal is a company that sells fruit and veggies in Northern California. They specialize in heart healthy items. :-)

dit dit
SIG
Chuck Adams K5FO CP-60
adams@sgi.com

From owner-qrp-1@netcom.com Thu Oct 6 12:43:34 1994
Date: Thu, 6 Oct 94 08:09:53 -0500
From: adams@chuck.dallas.sgi.com (chuck adams)
Message-Id: <9410061309.AA12599@chuck.dallas.sgi.com>
Subject: NorCal 40a es Sierra

Gang,

Just saw Doug's posting on the NorCal 40a. The check is in the mail. I have regretted very much the selling of my NorCal 40 to one of the members of the group, but he did do well with it.

If they use the same pc board company that did the Sierra board, then it will be of such beauty that noone will want to solder to it.

I have been working on the Sierra and the board and it is probably the best one I've ever seen in my life and I have put together a great many kits. It has crisp sharp trace edges with clear solder mask. The registration, i.e. the alignment is perfect in every way. No offsets anywhere that I can find with a 8 power AGFA Lupe used for photo work. The silkscreen is sharp, perfectly aligned with the rest of the board and very well layed out. I like the fact that the component numbering is outside the part outline, so that after you solder a resistor in the RNN label is next to it and not under it like other kits. Not a big thing, but it will sure help those that have to go back and double check things. (not that i have ever had to do that :-))

The board is double sided plated through solder masked and solder plated and silk screened with component outlines and component numbers.

The only mod that I would make so far to the manual, and this is really a consumer of space and I don't mind the way it is now, I'd like to see another parts layout with the parts in numerical order. For example, the resistors are shown with values in a table as

R13	22ohm
R15	56ohm
R4, R18, R24	100ohm
...	

This is fine, but it would make it easier to check things off and do them in order on the board if we had

R1	1K pot
R2	1.8K
R3	220K
R4	100ohm
R5	10M
...	

You could do multicolumn format to save a lot of space. This would help the experienced builder race down and find values or pick up resistor and find next slot that it would go into.

Not being critical, just a want from someone who likes

to check things off as I go and get visual feedback on how I'm progressing.

Remember, homebrew means assembled at your QTH. :-)

Built with pride - homebrew.

dit dit

SIG

Chuck Adams K5FO CP-60

adams@sgi.com

From owner-qrp-1@netcom.com Thu Oct 6 16:51:33 1994
Date: Thu, 06 Oct 94 12:08:20 EDT
From: Mike Thomas <MTHOMAS@uga.cc.uga.edu>
Subject: NorCal 40a question.
Message-Id: <941006.121709.EDT.MTHOMAS@UGA.CC.UGA.EDU>

Everyone,

After reading all the posting about the NorCal 40 I am glad to see it will be offered again as a kit. My question is can the 40a be tuned to cover 7100-7150? I ask this question with all the Novice/Tech Plus folks that my be reading and for myself. I am a Tech Plus. For some reason I am under the impression that the kit will only cover a segment of 7000-7100. If the current design does not cover the Novice segment what will need to be done to change that? I am looking at the check book with pen in hand, but

Thanks in advance.

KE4LAU

Mike Thomas

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_/ _/ _/ _/_/_/_/ _/_/_/_/
_/ _/ _/ _/_/_/_/ _/_/_/_/ mthomas@uga.cc.uga.edu
_/ _/ _/ _/_/_/_/ _/_/_/_/ University Computing & Networking Services
//_/_/ _/_/_/_/ _/ _/ University of Georgia

From owner-qrp-1@netcom.com Thu Oct 6 20:24:07 1994
Subject: Re: NorCal 40a question.
Date: Thu, 6 Oct 94 13:33:15 PDT

From: Eric Swartz WA6HHQ <erics@cruzio.com>
Message-Id: <9410061333.aa25252@cruzio.com>

Mike Thomas writes:

> After reading all the posting about the NorCal 40 I am glad to see it
> will be offered again as a kit. My question is can the 40a be tuned to
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> 7100. If the current design does not cover the Novice segment what will
> need to be done to change that? I am looking at the check book with pen
> in hand, but
> KE4LAU

Mike,

Yes the NC40, and the NC40A can be set to cover the novice portion of
40m. The NC40 covers any 25-30khz spread in the band - the number of
windings on the VFO torroid determines where... Add or subtract windings
to get it where you want. (The NC40A may have a slightly wider range)

Also several mods have been published for the NC40 to give it a wider
tuning range using a ten turn potentiometer. (See back issues of QRPp)

If you have any more questions, feel free to ask. I'm one of those
NC40 owners who has modified it to death!

72, Eric WA6HHQ

--

From owner-qrp-l@netcom.com Thu Oct 6 17:27:45 1994
Date: Thu, 6 Oct 1994 18:08:04 +0100 (BST)
From: "R.S. Bannerman - Medical Physics - ext Ninewells "
Subject: please subscribe
Message-Id: <Pine.3.89.9410061846.A10705-01000000@dux>

please subscribe

From owner-qrp-l@netcom.com Thu Oct 6 17:56:53 1994
From: Bilbee@aol.com
Message-Id: <9410061256.tn495519@aol.com>
Date: Thu, 06 Oct 94 12:56:37 EDT
Subject: QRP heaven

Please send me info on how to subscribe to the qrp-interest mailing list.

I'm an avid qrp-er at home and on long bicycle trips.

Thanks --

Bil Paul KD6JUI 337 Estrella Wy, San Mateo CA 94403

From owner-qrp-1@netcom.com Thu Oct 6 04:40:19 1994
Date: Wed, 5 Oct 94 19:18:26 HST
From: jeffrey@math.hawaii.edu (Jeffrey Herman)
Message-Id: <9410060518.AA27297@kahuna.math.hawaii.edu>
Subject: QRP talk on UseNet

A QRP thread has started on wreck.radio.amateur.misc - here's a few of the articles.

Jeff NH6IL

phb@syseng1.melpar.esys.com (Paul H. Bock) writes:

> Second, recall that *wire* antennas were the
> norm in those days - no big yagis on towers with rotators!

I'll take a proper rhombic over a yagi any day. It's a wire antenna with an attitude! On 20m, they aren't even all that big. Terminated rhombics are lovely broadbanded creatures, unlike yagis.

I seem to recall that the rhombic has a long history; that's why the ARRL logo is shaped the way it is. So a QRP'er using them in the mid-20's wouldn't surprise me.

regards,

Ross ve6pdq

rkm@vectorbd.com writes:

>Michael Barney (mikeb@tdc.dircon.co.uk) wrote:

>: I seem to recall some "Hamfest" communications going 100's or thousands
>: of miles on less than 1 watt transmit power (and not at microwave
>: frequencies w/ large Parabolics either).
>: I'm specifically looking for "how far" on "how little power" under
>: *relatively ideal conditions* for 1 milliwatt and 1 watt.

> I've never run more than 4 watts in the 1.5 years that I've had
>my licence, and usually stay down at about 1 watt unless conditions
>are *REALLY* bad. :-) My contacts average out to about 400+ miles
>on the 40M band, although my longest-range contact was approximately
>2800 miles with 2 watts. It's not unusual for dedicated QRP
>enthusiasts to get several thousand miles per watt.

> So, in short, you can work around the world if you have patience,
>a good antenna, and someone who is willing to dig your peanut-whistle
>signal out of the noise.

From "200 Meters and Down" by Clinton B. DeSoto, published in 1936,
page 112:

"But this paled before the performance of Loren G. Windom, 8GZ-8ZG,
of Columbus, Ohio, who on December 30th (1925) communicated with (Henry A.)
Kauper, a5BG (of Dulwich, Adelaide, South Australia) using an input of only
0.567 watts to a UV-199 receiving tube! With the distance given as 10,100
miles, this figured out to be 17,820 miles per watt. On January 3, 1926,
contact was established with Major J. G. Swart, oA6N, in Capetown, South
Africa, using 0.54 watts input. On February 28th, 8GZ worked George H.
Shrimpton, z2XA, in Wellington, New Zealand, a distance of 8500 miles,
with 0.493 watts input, giving 17,250 miles per watt. A filament poten-
tial of 4 volts was applied to the UV-199 tube during these tests, and
a plate voltage from 70 to 75. So far as is known, these completely
incredible records - in which much less power was used than is consumed
in the ordinary flashlight bulb - still stand unbroken."

Two comments: First, I didn't check the *frequency* used for these
tests, but it was most likely 20 meters (possibly 40 at night). Of
course, there was no QRM in those days and very little electrical
interference, so receiving conditions must have been stupendous
compared with today. Second, recall that *wire* antennas were the
norm in those days - no big yagis on towers with rotators!

BTW, does the name "Windom" ring a bell? Was 8GZ "the" Windom, or
is that just a coincidence?

(|_|) Paul H. Bock, Jr. K4MSG Internet: pbock@melpar.esys.com
| |) Principal Systems Engineer Telephone: (703) 560-5000 x2062

"You can have my bug when you can pry my cold, dead fingers from
around it....." - anonymous radiotelegraph operator

More correct is to wonder how far an E-M wave of a certain power

can travel.

Say you're transmitting 1 watt to a real "isotropic" radiator. Your "power flux" is then $1 \text{ watt} / (4 \times \pi \times r^2)$, or the power radiated divided by the surface area of the sphere at some given distance.

By determining that some solid angle containing power will direct to your desired location, you can figger out just how much power is going into the ionosphere along your desired path. Chances are PRETTY GOOD that not all of that 1 watt is going along the desired path...

Now use a beam. Integrate over the beamwidth that's going in the direction of the skip, and you'll find that considerably more power than with the isotropic radiator is going in the desired direction.

So if you've got a 10 dbi antenna, you need 1/10 the power to achieve the same results if it's pointed in the right direction.

I've been heard in OK/OM on 3 watts to a dipole with a 6 element monobander on the other end...

And don't forget about "effective gain" of CW over phone, either. SSB carries more information, but must spread the power out over a wide spectrum in order to do so. CW has a very narrow BW...

--

73,

	-----	-----	The
	\ /	Long	Original
Scott Rosenfeld	Amateur Radio NF3I	Burtonsville, MD	Live \$5.00
WAC-CW/SSB	WAS DXCC - 130	QSLed on dipoles	----- Dipoles! Antenna!

From owner-qrp-1@netcom.com Thu Oct 6 22:41:37 1994

Date: Thu, 6 Oct 1994 16:56:50 +0800

From: Raymond.Anderson@EBay.Sun.COM (Ray Anderson)

Message-Id: <9410062356.AA09985@uranium.EBay.Sun.COM>

Subject: Quadrature VFO Loop Simulation Stuff

I have started some computer simulations of various subcircuits in the adjustable phase locked loop quadrature generator scheme I was discussing a few days ago.

The simulation of the day for today is concerned with the circuit that gives us variable duty cycle control. If you downloaded

the phzloop.ps file from the ftp site, this is the differential pair that interfaces the VFO to the quadrature generation logic.

I modified the original circuit a bit, in that the two transistors are now direct coupled at the emitters instead of being capacitively coupled. I ran a bunch of SPICE simulations to see how the duty cycle control would behave, as well as looking at the circuits sensitivity to power supply voltage, VFO level, and temperature. The results are tabulated below. There is obviously room for optimization, but as a first cut it looks encouraging.

Basically, it looks like phase control will be no problem over a resonable range. The duty cycle response is monotonic. As long as the RF level from the oscillator is maintained between 3-4 volts, the sensitivity of the duty cycle to RF variations looks reasonable. And lastly, nothing really bizarre happened to the simulation over the 0 to 40 C range.

Computer simulations are nice, but until you build up a circuit and play around with it, you never know. I'm planning on doing that in the near future. (Along with building my R2/T2 boards, working on the rest of the circuitry for this VFO project, dealing with my two teenagers, dealing with the Boy Scouts, things around the house, my wife, and keeping Sun Microsystems happy between 8 and 5).

Anyway, there is a SPICE netlist at the end of this message if anyone has the desire to play with it.

72's de Ray, WB6TPU
raymonda@uranium.ebay.sun.com

Differential Amplifier duty cycle control:

Reference voltage adjust:
RF Drive=3 volts
Temp=27 C.

Vcontrol (volts)	Duty Cycle (%H/%L)
---------------------	-----------------------

3.9	31/69
4.0	35/65
4.1	38/62
4.2	39/61
4.3	42/58
4.4	50/50
4.5	51/49

4.6	54/46
4.7	57/43
4.8	61/39
4.9	61/39

RF Drive level adjust:
Vcontrol = 4.4 VDC
Temp=27 C.

RF Level Duty Cycle

2	31/69
3	50/50
4	52/48

Temperature Variation
Vcontrol= 4.4 VDC
RF Level= 3 volts

Temp. Duty Cycle

0	51/49
27	50/50
40	47/53

* Differential Amp Ckt

.library cbjt.lib
.library cttl74ls

C1 6 0 1u
C2 5 7 1u
C3 1 2 1u
C4 10 0 1u
Q1 10 3 4 Q2N2222A TEMP=27
Q2 5 6 4 Q2N2222A TEMP=27
R1 0 4 120
R2 5 10 270
R3 3 2 560
R4 8 6 470
R5 3 10 4.7K
R6 0 3 4.7K

vcontrol 8 0 4.4
rseries 7 20 200
Vosc 1 0 SIN (0 3.5 14MEG)
VCC 10 0 13

xbuf 20 21 74ls04
rload2 21 0 500
.TRAN 5n 200n
.END

From owner-qrp-1@netcom.com Thu Oct 6 14:08:16 1994
Date: Thu, 06 Oct 1994 10:15:02 -0500 (EST)
From: "DONALD A. COLEMAN (EXT. 2850)" <DACOLEMAN@fair1.fairfield.edu>
Subject: Re: RIT and zero beat
Message-Id: <01HHYALCTJ6A9AP740@fair1.fairfield.edu>

Gang,

(1.) One tricky thing about zero-beating with some rigs, like my Century 21, for example, is one's inability to monitor the transmitted signal in combination with a shift introduced in the transmit mode by some buffer bias changes and the like under key-down conditions.

(2) I remember hearing years ago about some high-power (God forbid!) transistors that run on a collector voltage of 1.5. I wonder whether some of those are still around. I have lots of very nice small-signal transistors that make oscillators (both crystal and self-excited) and that perform well at 1.5 volts. You could get at least 15 mw out of any one of those.

72.9493558 DE W1V0Q

From owner-qrp-1@netcom.com Thu Oct 6 18:36:55 1994
Date: Thu, 6 Oct 1994 15:19:27 -0400 (EDT)
From: Brien Pepperdine <pepperb@gov.on.ca>
Subject: seen on packet
Message-Id: <Pine.3.07.9410061527.A3137-9100000@govonca>

this was seen on packet today, hopefully someone will be lucky enough to find this of use:
QUOTE:

Greetings! I have a Ten-Tec PM3-A Power Mite QRP rig for sale. I have the matching power supply and a matching swr/power meter to go with the rig. All of the equipment is very clean, and it works great.

I will sell the complete set for \$90 shipped in the lower 48. Call me at (419) 538-6479 in the evening.

73 de N8SNC, Tony

From owner-qrp-l@netcom.com Thu Oct 6 19:19:31 1994
From: wrb@aloft.att.com (w.r.bullman)
Date: Thu, 6 Oct 94 13:44:06 EDT
Message-Id: <9410061744.AA11081@pizza>
Subject: Sierra, NorCal40a...

Could some kind person describe the NorCal40a and the Sierra for new people? I know I could join the NorCal club but I wanted to wait until I knew if I wanted to order one of these the same time I sent in my dues. I also don't want to wait since from the threads, it looks like these may go fast.
Thanks.

73,
William R. Bullman | phone : 610.712.7917 | N3SWX
AT&T Bell Laboratories | fax : 610.712.4217 | All opinions mine.
555 Union Blvd 23R-126GA | Internet: wrb@aloft.att.com | AT&T's may differ.
Allentown, PA 18103 | ICBM : 40.610 N, 75.477 W |

From owner-qrp-l@netcom.com Thu Oct 6 10:59:08 1994
Message-Id: <199410061301.JAA27892@thor.INS.CWRU.Edu>
From: Stephen Trier <sct@po.cwru.edu>
Date: 6 Oct 1994 13:01:08 GMT
Subject: Strategy for 1000 mi/W

I was thinking about the 1000 mi/W award, trying to figure out what the best strategy would be. Assuming perfect free-space propagation, is it easier to win the award at 1 mW and 1 mile or at 5W and 5000 miles?

After I crunched through some equations it looks like the quadratic elements disappear and the relationship is linear. This surprises me, though it does explain why 1000 mi/W is a useful benchmark.

Did I do this right? Is it really linear?

Stephen

--

Stephen Trier "Here, but for an extraordinary physics teacher,
sct@po.cwru.edu goes a saxophone player."
KG8IH - Albert Overhauser, National Science Medal winner

From owner-qrp-1@netcom.com Thu Oct 6 21:39:36 1994
Message-Id: <199410062204.AA12370@halcyon.com>
Date: Thu, 6 Oct 1994 15:04:57 -0700
From: xenolith@halcyon.com (Kevin Purcell)
Subject: Re: Strategy for 1000 mi/W

>I was thinking about the 1000 mi/W award, trying to figure out what
>the best strategy would be. Assuming perfect free-space propagation,
>is it easier to win the award at 1 mW and 1 mile or at 5W and 5000
>miles?

Almost certainly the former (at 10GHz you should have no problem!). You
only have the free space path loss (none due to refraction and
scatter/absorption on reflection from the earth).

>
>After I crunched through some equations it looks like the quadratic
>elements disappear and the relationship is linear. This surprises me,
>though it does explain why 1000 mi/W is a useful benchmark.
>
>Did I do this right? Is it really linear?

No because you have a noise floor, you can't hear an arbitrarily low power
signal you disappear into thermal noise if the frequency is high enough or
into QRM/QRN at lower frequencies.

For any sort of detector this will result in square law behaviour at low
S:S+N ratios.

In fact, think about what happens to the S:S+N when the power is reduced.

As a rule of thumb you need to get -100dBm into the RX to get a good
contact. You could do the free space path loss calcs to figure how far you
would have to be to do this in LOS.

Kevin Purcell N7WIM / G8UDP xenolith@halcyon.com 206/649-6489
Seattle dBug Mac Developers SIG organiser kevinpu@atm.com

From owner-qrp-1@netcom.com Fri Oct 7 01:36:00 1994
Date: Thu, 6 Oct 1994 22:07:56 +0059 (EDT)
From: howie cahn <wb2cpu@world.std.com>
Subject: Re: Strategy for 1000 mi/W
Message-Id: <Pine.3.89.9410062156.B2292-01000000@world.std.com>

On 6 Oct 1994, Stephen Trier wrote:

> I was thinking about the 1000 mi/W award, trying to figure out what
> the best strategy would be. Assuming perfect free-space propagation,
> is it easier to win the award at 1 mW and 1 mile or at 5W and 5000
> miles?

An interesting question!

Actually, it's not that hard to do at either end of the power range you mentioned (although, it's harder now than 3 or 4 years ago when the sunspots were higher. Then, if you were QRP, it would be hard to make a QSO on 10 meters that didn't qualify.) Since it's more interesting to work another continent than the next town, I'd adjust my power so that getting to Europe would do it. I guess that would be about 3.5 watts for you. Europe is workable from the midwest during many 20 meter and some 40 meter openings. Just pick a loud station and keep trying. Loudness probably means he's using a high-gain antenna which will improve his ability to copy you. If you really want to make it easy, wait until the next DX contest. Then, not only will the best ops be out and wanting to work you, but there are some super contest stations. Many have antennas like a stack of four, 4-element beams on 20, say, about 14 or 15 dBd gain. That's makes a QRP station equivalent to over 100 watts when compared to working someone with a dipole.

Good luck...

72/73... howie
wb2cpu@world.std.com

From owner-qrp-1@netcom.com Thu Oct 6 21:10:36 1994
From: ab4el@Cybernetics.NET (Stephen Modena)
Message-Id: <9410062126.AA26534@Cybernetics.NET>
Subject: Re: Strategy for 1000 mi/W (fwd)
Date: Thu, 6 Oct 1994 17:26:09 -0400 (EDT)

Stephen Trier <sct@po.cwru.edu> said:

> Date: 6 Oct 1994 13:01:08 GMT
>
> I was thinking about the 1000 mi/W award, trying to figure out what
> the best strategy would be.

I remember my first trans-Atlantic 1 watt CW QSO...with a OK1 who really worked hard to get the callsign right and complete the exchange. He had a quad and admitted it wouldn't have worked without it. The quality of the station and op on the *other* end is critical.

I have 40 countries on 40 CW QRP, but don't spend any time pursuing it. However, my rule-of-thumb for 40 is this: the eastward DX station will probably answer me *if* he is 20 db stronger than the average of the signals in that part of the band. Westward stations are likely to answer at *my* dawn.

I only have about 6 countries on 40 SSB QRP...but I think that is understandable from the pattern World Allocations and the need to do split under most circumstances. Of course, all Lower 48 States 40 SSB QRP.

I have all the Lower 48 on 80 SSB QRP, also. KH6? KL7? Not yet. I have 21 countries on 80 SSB QRP...one QSO stands out as memorable: it was mid-summer and the DX window was empty and I just started calling CQ DX for a few minutes and a Brit answered. We had a ragchew (as opposed to "your 44 es 73"). It provoked extended comments on the QSL cards in both directions. :^)

One time I answered NP4A who gave me 59++, but admitted that his beam was fortuitously pointing right at me. ;^) I find that DX contest time is best for SSB QRP on 80...the DX station has his stuff really dialed in and is listening hard for maximum QSO count. The most opportune moment in when there are several QRO stations pounding each other to be heard. This overloads the DX op's mental discrimination...so the DX station will say one or two letters of the call he *thinks* he heard...a certain percentage of the time, none of the U.S. stations recognizes that as a go-ahead and there is a fractional second of absolutely clear channel with the DX station listening in anticipation... and you then snap "AB4EL 59" at 1 watt...and the DX station, wanting to keep his QSO-rate pace going will *gladly* answer any station he can hear in the clear. :^)

Of course, one needs to listen, listen, listen: in the 80 M DX window the best time for a QRP station is when a DX station has just come on and no one has spotted him...and amazingly, that can be quite long a period if there are several other DX stations busy in the window.

Also, another strategy I use on 80 (both for QRP SSB and mobile) is to piggy-back on a strong 1-land/2-land station with their loops and Beverages: the U.S. station easily QSOs the European...I listen to the U.S. station to see how strong he thinks the European is...let's say "59 plus 30"...which means that I can talk while the *European* is transmitting and not seriously override him. And I say on each over: "QRP station standing by." When the U.S. station finishes his ragchew, 50% of the time, he will say to the European: "There's a QRP station that would like to try you." Being good DXers, they don't give a hint of my callsign, so the DX station has to hear it...or not. But, that request from the *current* contact will usually get the

DX station to say: "Listening for the QRP station." And that keeps the QRO stations at bay for a few moments. :^)

One final strategy point: I use insulated wire to make my dipoles...in an urban environment, exposed copper immediately begins to form an oxide/sulfate layer, which I take to be *semi* conducting.

I find QRP SSB and Mobile SSB on 40 and 80 to be loads of fun...and don't bother with any of the higher freq bands.

73/Steve/AB4EL ab4el@cybernetics.net

I have about 40 countries QRP on 40 CW.

From owner-qrp-l@netcom.com Thu Oct 6 16:08:40 1994
Message-Id: <9410061539.AA26401@atm.com>
Date: Thu, 6 Oct 1994 08:44:23 -0700
From: kevinpu@atm.com (Kevin Purcell)
Subject: Re: The ONER transmitter

>Slight problem... Kanga has the sole rights to the supply
>of the ONER transmitter from the G-QRP club, the name is
>"copyright" of the club.

I think you mean trademarked?

Is the name "ONER" (and the others) registered as a trademark in the USA? If not, you or the G-QRP club don't have any rights to the name. In fact, is it a registered trademark in the UK, come to that? Just making up and using a name in a journal does not imply any protection from other people using that name. If it is trademarked then you must defend your trademark but informing the infringers that they are infringing on your trademark, else your claim to the trademark could be declared invalid.

If someone copies your drawing of the circuit diagram then you could get them for copyright infringement, but not if they merely redrew it. But copyright only expresses the expression of an idea not the idea itself. If they redraw the circuit diagram themselves then that is no breach of copyright.

If they directly copied your PCB artwork then that would be infringement but not if they relaid out the schematic.

If your circuit is novel you could apply for a patent and then use that to protect your implementation of that idea.

>The other parts of the ONER transceiver,

>ie the Rx, QSK, VFO, LPF are copyright of Kanga, designed
>by us.

Same things apply.

You either defend your rights properly or you loose them.

ObQRP":

Has anyone received the 50Mhz transverter kit from Ten Tec? Seen its
design? I'd like to hear what you think!

Kevin Purcell	Attachmate Corp	kevinpu@atm.com	206/649-6489
Seattle dBug Mac Developers SIG organiser		xenolith@halcyon.com	N7WIM / G8UDP

From owner-qrp-l@netcom.com Thu Oct 6 20:22:39 1994

Message-Id: <9410062055.AA15902@bach.nmsu.edu>

Date: Thu, 06 Oct 1994 14:56:11 -0600

From: tpettibo@admin.nmsu.edu (Tim Pettibone)

Subject: Re:Was that you last night?

Chuck:

Got home from a quick trip to San Diego and had the rig on after 0200 last
night (10/6/94) around 7038 and thought I heard you calling CQ off frequency
some place. Rushed over from the desk and couldn't find you again. Might
that have been K5F0? Guess I got to take this FOXHUNT stuff more seriously.

Also was going through some qsls and saw that we had qsod earlier during
some qrp session. Take care and look for AB50U / QRP!

Tim

Las Cruces, NM